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What is claimed is:

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1 1. A method of encoding binary data for transmission over an image data channel,
2 comprising:

3 defining encoding parameters adapted for encoding the binary data in such a
4 manner that a transformed linear matrix image produced by transmitting an encoded linear
5 matrix image over the image data channel is reconstructable into the encoded linear matrix
6 image; and

7 encoding the binary data into the encoded linear matrix image according to the
8 encoding parameters.

1 2. The method of claim 1, further comprising:
2 electronically storing the encoded linear matrix image as an image file.

1 3. The method of claim 2, further comprising:
2 associating the image file with a web page.

1 4. The method of claim 1, further comprising:
2 encrypting the binary data prior to the encoding.

1 5. The method of claim 1, further comprising:

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2 identifying image-distortion characteristics of the image data channel; and wherein
3 the defining includes analyzing the image-distortion characteristics so as to determine the
4 encoding parameters.

1 6. The method of claim 1, wherein the binary data represents a firmware upgrade
2 for a printing apparatus.

1 7. The method of claim 1, wherein the encoding further includes encoding a data
2 section of the encoded linear matrix image, the data section having a plurality of regions of
3 colored data markings, each of the data marking regions representative of a predetermined
4 quantity of the binary data.

1 8. The method of claim 7, wherein each individual one of the plurality of data
2 marking regions has a predetermined size and one of a set of predetermined colors.

1 9. The method of claim 8, further comprising:
2 identifying image-distortion characteristics of the image data channel; and
3 determining the predetermined size and the set of predetermined colors from the
4 image-distortion characteristics.

1 10. The method of claim 9, wherein the predetermined amount of the binary data
2 encoded in each color marking region corresponds to the number of different
3 predetermined colors in the set.

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1 11. The method of claim 8, wherein the numeric value of the predetermined
2 quantity of the binary data represented by a selected individual one of the plurality of data
3 marking regions corresponds to the particular one of the predetermined colors used for the
4 selected data marking region.

1 12. The method of claim 9, wherein the image-distortion characteristics are
2 obtained from a particular image data channel with which the encoded linear matrix image
3 is associated.

1 13. The method of claim 9, wherein the image-distortion characteristics include
2 one or more characteristics selected from the group consisting of dimensional scaling,
3 color mapping, downsampling, clipping, pagination, margination, smoothing, compression,
4 and printer control language encapsulation.

1 14. The method of claim 7, wherein the encoding further includes encoding a
2 header section of the encoded linear matrix image, the header section having a plurality of
3 regions of colored header markings, a subset of the header marking regions indicative of at
4 least one encoding parameter used for encoding the data section.

1 15. The method of claim 14, wherein the header section further includes another
2 subset of the header marking regions indicative of a detection key for recognizing the
3 transformed linear matrix image.